

## The Energy Business & Sandia Labs

There's hardly an employee of the Labs who, exposed to one message or the other about the energy crisis, hasn't wondered or concluded that Sandia should get involved — that we should get some of the energy action. We have the people, we have the facilities, we have a great track record. All the elements strongly support the notion of the Labs filling a significant role in helping the nation meet its energy needs.

Our top management reached that conclusion some time ago, and LAB NEWS discussed with Don Shuster (4700) what the Labs has been doing in the energy business in the last few months. As recently appointed Director of Advanced Planning and Analysis, Don is Sandia's chief energy coordinator.

"We've been busy," Don said, "defining areas relating to energy in which Sandia could logically make a contribution. We then prepared proposals — 21 of them — for AEC review. They are now being looked at by Chairman Dixy Lee Ray's Technical Review Panels. The proposals run the gamut from an ingenious technique for coal excavation to the use of wind as an energy source. (See below.) Some of the proposals will be pushing the state of the art, but most represent solid, feasible technology. Keep in mind, though, that all are proposals, no more, no less. We've got a long way to go before we learn which — if any — proposals get the OK."

Don emphasizes that Sandia is not alone in its attempts to enter the energy business. And that work on energy projects would constitute a small fraction of our overall work. "Weapon work will remain the main stream activity at Sandia during the foreseeable future," he states.

Here are the titles of the 21 proposals submitted:

1. Fracture of coal and oil shale for in situ processing or remote removal
2. Coal excavation by nozzleless pulsed hydraulic jets
3. Hydrogen compatibility with structural materials at high temperatures and pressures
4. Instrumentation systems development for in situ processing and process control
5. Solid electrolyte technology
6. Hybrid processes for extraction of hydrogen from water
7. Measurement of the characteristics of fractures induced in subsurface geological formations
8. Deep drilling with shocks generated by electrical detonations and subsequent cavitation



DON SHUSTER, director of Advanced Planning and Analysis 4700, is recently appointed energy coordinator at Labs. The solar collector he is examining would be the basic energy collecting element in the solar community, a concept now under study at Sandia.

9. In situ thermal stimulation of heavy oil wells by use of accident resistant, solidified radioactive waste canisters
10. Solar total energy program: "Solar Community"
11. Solar Energy: Photovoltaic conversion for terrestrial applications
12. Development of a high temperature solar energy system
13. Direct magma tap
14. Ocean current energy conversion
15. Wind energy conversion
16. Combustion analysis by Raman spectroscopy
17. Thermoradiation treatment of sewage sludge using reactor waste fission products
18. Development of techniques for energy conservation with emphasis on utilization of waste heat
19. Hydrogen as a vehicular fuel
20. Pollutionless municipal-solid-waste conversion through gasification in a recycled molten iron process
21. Hydrogen catalysis, embrittlement and hydride research

Don notes that each of the 21 proposals represents a great deal of effort by a number of Sandians, both in Albuquerque and in Livermore, and that all derive, directly or indirectly, from work already done at the Labs. "We're not starting from scratch on any of them," he says.

When will we know which proposals have been favorably received? "It's a long process," says Don. "My guess is that we'll have a pretty good idea of where we stand with most of our proposals by early next year. And the funding on those that are approved isn't scheduled until fiscal '75 — next July. So be patient." Don promises to keep us posted on developments. •js

### Sandians at Pantex Participate 100% In United Way

The 22 employees of Stockpile Systems Test Laboratory, Division 9524, who work at the Mason & Hanger Pantex facility in Amarillo, have achieved a remarkable record in the '73 Amarillo United Way drive.

The Sandians participated 100 percent, 86 percent at the Fair Share level. Average gift pledged was \$80.78.



NOTE: Combined shoulder/seat belt (it's not either, it's both); that you buckle the belt before turning the key; the pretty '74 car (courtesy Rich Ford); and Lorraine Cano (courtesy AEC).

## Avis, Hertz, National Grant Discount

If you rent a car for your personal use, you can now gain a discount from Avis, Hertz, and National. The discount will vary by location but should be a minimum of 20 percent. Payment should be in cash, and the rental should not be charged to Sandia. Under this arrangement you won't have to cough up the customary \$50 deposit either (theoretically).

Here's the procedure: for Avis and National present your Sandia ID and your driver's license to qualify for a discount. Hertz requires, in addition, a "personal Hertz ID card," available in Travel Section 7331-2 (Bldg. 800) for loan for a specific occasion. It should be returned after use.

Make your own arrangements with the rental agency — reservations and the like, and, needless to say, the Labs assumes no liability in the transaction.

\* \* \* \*

Do you have any horror stories, or even inspirational tales, to relate about your experience with rental cars? LAB NEWS is contemplating a consumer education type article on the subject. Give the editor a call on ext. 1053 if you do.

## Events Calendar

- Oct. 5-7 — "Arsenic and Old Lace," Old Town Studio, 8 p.m.
- Oct. 6 — Football, UNM vs. Arizona State, 7:30 p.m., UNM Stadium.
- Oct. 6 — Friends of Albuquerque Library, author Thomas Mails, "What Are Indians?," 7:30 p.m., Erna Fergusson Library, 3700 San Mateo NE.
- Oct. 7 — NM Mt. Club, Tree Springs trail in Sandias, 7 miles, Western Skies, 8:30 a.m.
- Oct. 10 — ASUNM Lecture Series: Bruno Bettelheim, author, speaker and director of the Univ. of Chicago's Orthogenic School, the residential treatment center for severely emotionally disturbed children. SUB Ballroom, 8 p.m.
- Oct. 12 — June Music Festival presents the Cleveland Quartet, 8:15 p.m., Popejoy Hall.
- Oct. 12-15 — University of Albuquerque Theater, "Dark of the Moon," Fine Arts Learning Center.
- Oct. 13 — NM Mt. Club, moonlight hike in Sandias, 3-5 hours, Western Skies, 6 p.m.
- Oct. 13 — Albuquerque Jazz Ass'n. presents "The Sandia Jazz Corp.," and jazz cellist Fred Katz, U of A, 8:15 p.m.
- Oct. 13-14 — NM Mt. Club, car camp and hike along Rio Puerco, call Sydney, 268-4771 by Oct. 10.
- Oct. 14 — NM Mt. Club, Bike ride to Juan Tabo, Gulf Mart, 8 a.m.
- Oct. 17 — "Krasnayarsk," Siberian Folk Spectacular, 8:15 p.m., Popejoy Hall.
- Oct. 17 — St. Margaret Mary Fiesta at Paraje Village, Laguna Pueblo.
- Oct. 18 — NM Ski Touring Club, general meeting, hospitality room, Ed Black's used car sales office (downstairs), 8 p.m.
- Oct. 19-20 — Albuquerque Symphony Orchestra presents "Fiesta Espanola," with Jose Greco, 8:15 p.m. Popejoy Hall.
- Oct. 19-21 — Ski Swap, Sandia Peak Ski Patrol, State Fair Grounds.

### Credit Union Reporter

## Consumer Bulletin

### Buckle Up, Whether You Want To Or Not.

And if you'd like to start the engine. All 1974 passenger cars are equipped with an electronic interlock system which prevents the engine from starting until the driver's safety belt is fastened (passenger's too, if there are any, or grocery sacks, for that matter).

The system works much like the interlock which prevents you from starting your car if the automatic transmission is in anything but Park or Neutral. And it's there for the same reason: safety. We're killing ourselves off at a fifty-plus thousand per year rate, we're wasting some \$35 billion a year in highway deaths and injuries, but, incredibly, we're still not wearing safety belts.

So the Department of Transportation is prodding a little less gently. Your '74 Whatever will coerce you into your safety belt and is especially aimed at those instances when you forget the system, jump in, turn the key, and think, "Omigod, the battery's dead." It's not dead — buckle up and away you'll go.

Some improvements are long overdue: three-point, one-piece belts mean lap and shoulder belts are interconnected — buckle once and you're protected; retractors allow complete freedom of motion — until a panic stop or crash situation locks your belt in position; belt locations and designs at least approach standardization — shifting from one

car to another won't mean a whole new learning sequence; and, finally, overriding the system by sitting on the buckled safety belt (an all-too-common practice with the '73 models) won't work but once — each new start demands unbuckling and rebuckling the belt.

The new system affects only the starter circuit: once the engine is running, unbuckling a front seat safety belt means only buzzer and warning light, not a stalled car. Likewise, letting off a passenger may cause a momentary buzz but it won't cut the engine.

Safety belt interlocks — the government's way of telling us to exercise a few restraints.

\* \* \* \*

### CU Bulletin Board

The Credit Union will again sponsor a course on Individual Federal Income Taxes. The pertinent facts:

Period: 7-9 p.m. on Wednesday nights for 8 weeks starting Oct. 10 or 17

Place: Coronado Club

Teacher: George Arnot

Text: Commerce Clearing House's "U.S. Master Tax Guide"

Class Size: 35 students; first come, first served (dependents of Credit Union members are also invited to attend)

Cost: \$10, payable at time of enrollment

Contact: Bill Bristol or Red Turner at the Credit Union

### Variable Annuity Unit Value

October .....	1.680
September .....	1.729
Average 1972 .....	1.737

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## LAB NEWS

Published every other Friday

### SANDIA LABORATORIES

An Equal Opportunity Employer

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bill laskar takes/makes pictures  
&

in livermore lorena schneider does all

# LIVERMORE NEWS

VOL. 25, NO. 20

LIVERMORE LABORATORIES

OCTOBER 5, 1973

## Coupling Device Developed For High-Pressure Gas System

A coupling device which can be tightened by hand has been developed for high-pressure gas systems by Harvey Pouliot of Engineering Division 8332. It has been tested at pressures from 25 to 20,000 psi and at temperatures from minus 320°F to plus 500°F.

Unlike most couplings in which high internal pressures tend to force openings in the seals, the all-metal device is sealed tighter by increasing pressures.

Made of beryllium copper, the device has three parts: tubing with a spherically ballooned end (inner ball) and thin tapered lip, a knurled nut that fits over the inner ball, and a hollow, spark-plug shaped part which has a depression (outer ball) at the mouth of the threaded end, and a tube at the other end. The inner ball has a slightly smaller contact radius than the outer ball.

During coupling, the inner ball fits snugly in the outer ball with the lip of the inner ball making the initial contact. Hand tightening the nut forces the lip against the inner wall of the outer ball. When the internal pressure increases, the flexible inner ball presses against the outer ball, creating a tighter seal. Alignment is not critical up to about 15° and the design could be changed to tolerate even more misalignment.

The coupling has been tested with helium at the above pressures and temperatures with no detectable leaks, even after being coupled and recoupled many times. The inner and outer ball surfaces must be lapped to a fine finish in order to seal helium adequately. Materials other than beryllium copper can be used depending on the application.

## Bob Reese Earns PhD Degree



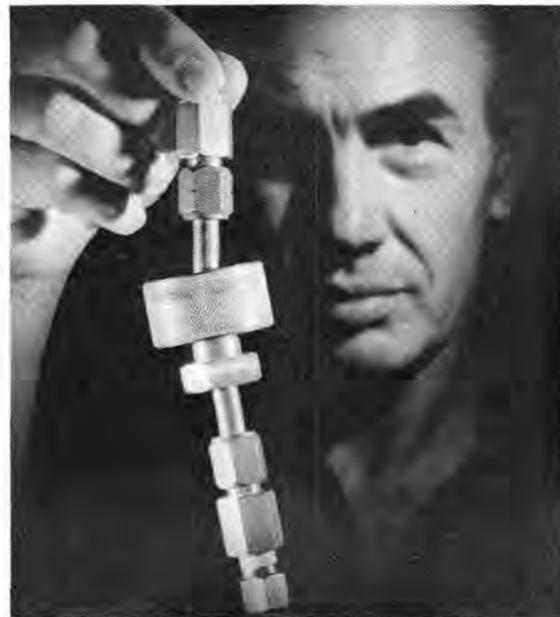
Bob Reese has returned to Sandia's Applied Mechanics Division 8113 after receiving his PhD degree in civil engineering from Lehigh University under Sandia's Doctoral Study Program. His thesis was entitled, "A Method to Determine the Sensitivity of Mathematical Models in Deterministic Structural Dynamics."

Joining Sandia/Livermore in April 1966, Bob transferred to Sandia/Albuquerque in January 1968 and in September 1970 entered the DSP program. His work at both Sandia locations has involved stress analysis and the development of mathematical models for structural mechanics.

Bob received both undergraduate and MS degrees in civil engineering from Brigham Young University in 1965 and 1966 respectively.

## Take Note

Col. Marvin Sullivan, USAF, is DNA's new chief of Technology and Studies Division (Livermore), the military organization maintaining scientific and technical liaison with LLL and Sandia. He succeeds Navy Capt. George Prassinis who has retired. Col. Sullivan holds PhD and MS degrees in chemistry from the University of Chicago. In his most recent assignment he was Director of Plans and Studies at Desert Test Center in Salt Lake City (since 1972), and before that, he was Chief, Analysis Division, Air Force Weapons Laboratory at KAFB.



HARVEY POULIOT (8332) displays new coupling device.

## Congratulations

Mr. and Mrs. Charles Ray (8432), a son, David Aaron, Aug. 28.

## Sympathy

To Phyllis Munn (8266) on the death of her father-in-law in Patterson, Calif., Sept. 3.

## Death

Ted Robinson of Model Labs Division 8423 died Sept. 22 after a brief illness. He was 64. Ted had worked at Sandia since February 1952.

Survivors include his wife Marie, one child, and two grandchildren.



## Retiring



Bob Neighbors (8412)

## Authors

Jack Dini, Rudy Johnson, John Helms (all 8312), "Influence of Temperature on the Bond Between Nickel Electrodeposits and Uranium," JOURNAL OF NUCLEAR MATERIALS, Vol. 45, pp. 343-346.

Ken Hicken (8423), F.J. Fraikor (Metro State College, Denver), and V.K. Grotzky (Dow Chemical/Rocky Flats), "Precipitation in EB Welded Beryllium Ingot Sheet," WELDING JOURNAL, Vol. 52, No. 5, May 1973.

Jim Shelby (8331), "Neon Migration in Vitreous Silica," PHYSICS AND CHEMISTRY OF GLASSES, Vol. 13, No. 6, p. 167-70.

Tony Thompson (8313) and Harry Saxton (8312), "Structure, Strength and Fracture of Electrodeposited Nickel and Nickel-Cobalt Alloys," METALLURGICAL TRANSACTIONS, Vol. 4, pp. 1599-1605.

Hartmut Spetzler (8314) and David Fancher (Kansas Wesleyan University), "Interpretation of Ultrasonic Measurements of Hot-Pressed Polycrystalline Specimens of MgO," JOURNAL OF APPLIED PHYSICS, Vol. 44, April 1973.

Michael Soderstrand (8182) and Sanjit Mitra (UC/Davis), "Design of Active Filters with Zero Passive Q-Sensitivity," IEEE TRANSACTIONS ON CIRCUIT THEORY, May 1973.

## Speakers

Walt Bauer (8334) and George Thomas (5522), "Helium Implantation and Surface Damage in Metals," and Ron Musket (8313) and Walt Bauer (8334), "Applications of the Proton-Induced X-ray (PIX) Technique in Surface Studies," Surface Physics Symposium, Washington State University, May 24-25.

Tony Thompson (8313) and Harry Saxton (8312), "Structure, Strength and Fracture of Electrodeposited Nickel and Nickel-Cobalt Alloys," and Tony Thompson (8313), "Compatibility of Dispersion Strengthened Nickel Alloys with Hydrogen," and "Deformation of Stainless Steel in the Presence of Lithium Hydride," Spring Meeting, American Institute of Metallurgical Engineers, Philadelphia, Pa., May 29-June 1.

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PHIL HARRISON (5525) displays his prizewinning model truck.

**Prizewinner at State Fair**

## Phil Harrison Builds Model Trucks

Phil Harrison (5525) builds model trucks. He builds them well enough to garner a blue ribbon during the recent State Fair competition. He placed first in the senior division of model jeeps, trucks and tanks.

Phil's winning entry is a replica of the Apex Company's tractor No. 208, a local rig with double set of trailers. Phil's model is 1/25th scale.

"I know the owner," Phil says, "and I've driven the truck. Seemed like a good idea to have a model of it."

Phil spent about 120 spare-time hours building the rig. His model duplicates the tractor's tilting cab which exposes the engine

and drive train, the folding rear doors on both trailers, the decals, the paint, the licenses — everything but the mud splatters.

He started building truck models a couple of years ago. "It's not particularly difficult but takes a lot of patience," he says.

Phil starts with a plastic kit which contains most of the parts in rough shape. He finishes them, assembles them, and then sprays on the paint. Final touch is the lettering — usually kit-provided decals. The Apex model required use of graphic arts type transfer letters.

"The fun was in the building," Phil says. "Now it just sits on a display shelf."

**Recreation Notes**

## FUN & GAMES

*Sandia Runners Ass'n.*

Albuquerque Road Runners are sponsoring a number of events this Sunday at Wilson Stadium (Lomas & Chelwood NE) to which SRA'ers are invited. The schedule: 1:50, Men's Run For Your Life, 1 mile; 2:00, Men's Intermediate, 1 mile; 2:10, Women's Open, 1/2 mile; 2:15, Men's Novice, 2 miles; 2:35, Men's Open, 40 x 1/4 mile, 2-man relay (each runs 20 quarter miles, alternating with each other, very tough!).

And for those for whom the above is too tame, the 4th Annual Tour of Albuquerque Marathon will take place Sunday, Oct. 21, 26 miles, 385 yards. Thus far only one SRA'er, Pete Richards, plans to run. "If you want to win a race," said Emil Zatopek, the great Czech runner of the '52 Olympics, "run the mile. If you want an experience, run the marathon." Anyone for an experience?

\* \* \* \*

*Sandia Flag Football Ass'n.*

Sandia entered two teams in the city flag football league: The Odd Squad (7000), under coach Howard Sanchez (7131), have a 4-0 record; The Blues (mostly 5000), organized by Dave Johnson (5245), are 2-1 and have allowed opponents only 6 points in 3 games. Buddy Sanchez (2631) organized a team from Belen which has accumulated a 4-0 record.

*Sandia Bicycle Ass'n.*

Three more serious accidents involving The Chain (now a yellow rope) across Sandia Drive near the school have been reported in the last week. Two riders took headers after hitting the rope and the third almost went over the handlebars, but the line broke at the last moment. Over the last year, at least a dozen riders have bashed into this barrier. SBA officers have made repeated protests about this hazard to the military, to no avail. Between the chaos at the Wyoming Gate and this continuing fiasco with The Chain, many bikers wonder: Do they really and truly love us?

\* \* \* \*

*Basketball*

The SLA Basketball Association will hold its organizational meeting at noon, Oct. 18, in the El Dorado Room of the Coronado Club. The '73-'74 season will be discussed and association officers will be elected.

\* \* \* \*

*Women's Sandia Labs Bowling League*

This group rolled off to a good start last month with 10 five-member teams participating. Game time each Thursday is 6:20 p.m. at Holiday Bowl. Members are Labs and

## Take Note

Rick Petersen (9312) will address members and guests at the Instrument Society of America section meeting on Oct. 10. He will discuss "High Speed Scientific Photography," and his presentation will include color movies and slides. The group will meet at 8 p.m. in the Hospitality Room of Albuquerque National Bank, Washington and Central.

\* \* \* \*

Rae Hill (4140) and Ann Michele (3100/7500) are attending a regional conference of the National Secretaries Association (International) this weekend in Yuma, Ariz. Approximately 200 secretaries from Arizona, Nevada, California and New Mexico are in attendance. Ann is the state president of the New Mexico Division of NSA.

\* \* \* \*

The Albuquerque Lesser Symphony Orchestra is beginning its second year of weekly rehearsals — just for the fun of it. Experienced instrumentalists are always welcome. Sandians currently playing are: Paul Field (2325), flute; Ian Fritz (5132), cello; John Gieske (9352), violin; Tom Green (5211), bass; and Ken Touryan (5640), violin. Ask them about ALSO.

\* \* \* \*

Al Switendick (5151) will discuss "Hydrogen in Metals — A New Theoretical Understanding" at the 5100 seminar Tuesday, Oct. 9.

Larry Berthold (5162) will present "Hypervelocity Impact of Soft Spherical Projectiles on Structural Materials" on Tuesday, Oct. 16.

The seminar meets at 8:30 a.m. in Bldg. 806, Rm. 201.

## Sympathy

To Truett Blackmon (1246) on the death of his mother in Lovington, N.M., Sept. 13.

To Judy Hallett (7631) on the death of her husband (as a result of an accident) in El Paso, Sept. 9.

AEC employees. Current officers are: Dora Montoya (1542), president; Sadie Knight (1115/1116), vice president; and Aurora Baca (7631), secretary.

\* \* \* \*

*NTS Golf*

Sandians based at Nevada Test Site recently held their first golf tournament. The Nevada Test Site Invitational Golf Tournament (Handicap) was played on the Fairway to the Stars course in Las Vegas. Winners were: Gene Jones (1125), first; Larry Arnold (REECO), second; and Dennis Adkins (1124), third.

\* \* \* \*

*Women's Sandia Golf Association*

Sandy Blose (9515) was low gross winner in the Par 3 Summer Tournament and Alma Mischke (4152) was runnerup. Lena Valerio (1111) took the low net honors.

## Authors

P.M. Richards (5132), "Critical Exponents for NMR and ESR Linewidths in a Two-Dimensional Antiferromagnet," Vol. 13, No. 3, SOLID STATE COMMUNICATIONS.

M.R. Scott (2642), "An Initial Value Method for the Eigenvalue Problem for Systems of Ordinary Differential Equations" and "An Initial Value Method for Integral Operators: I-Complex Eigenvalues," Vol. 12, No. 3, JOURNAL OF COMPUTATIONAL PHYSICS.

D.R. Begeal (2413), "The Outgassing of Copper Pinchoffs," Vol. 10, No. 4, THE JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY.

J.E. Houston (5114), "Exact Corrections for Potential Modulation Distortion in Auger Yield Measurements," Vol. 38, No. 2, SURFACE SCIENCE.

W.G. Perkins (2413), "Permeation and Outgassing of Vacuum Materials," Vol. 10, No. 4, THE JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY.

G.A. Samara (5130) and B. Morosin (5132), "Anharmonic Effects in  $KTaO_3$ : Ferroelectric Mode, Thermal Expansion, and Compressibility," Vol. 8, No. 3, PHYSICAL REVIEW B.

R.L. Fox (5643), "Multipoint Distribution Calculation of the Isotopic Turbulent Energy Spectrum," Vol. 16, No. 7, THE PHYSICS OF FLUIDS.

R.R. Eaton (5643) and P.C. Kaestner (5625), "Viscous Shock Layer Flow in the Windward Plane of Cones at Angle of Attack," Vol. 11, No. 9, AIAA JOURNAL.

M.A. Gusinow, J.K. Rice and T.D. Padrick (all 5215), "The Apparent Late Time Gain in a Photodissociation Iodine Laser," Vol. 21, p 197, PHYSICS LETTERS.

J.K. Rice and F.K. Truby (both 5215), "Relaxation Versus H Atom Abstraction by Methyl Radicals in Flash Photolyzed Mixtures of Methyl Iodide and Diluent Gases Studied by Time Resolved Mass Spectroscopy," Vol. 19, p 440, CHEMICAL PHYSICS LETTERS.

L.V. Rigby (1642), "Why Do People Drop Things," Sept. issue, pp 16-19, ASQC QUALITY PROGRESS.

D.K. Brice (5111), "Application of a Stopping Power Formula to Channeled Ions," Vol. 18, Nos. 1-2, RADIATION EFFECTS.

C.B. Norris (5113), K.L. Brower (5112) and F.L. Vook (5110), "Ionization Effects in Self-Interstitial Migration and Implant Damage Annealing Silicon," Vol. 18, Nos. 1-2, RADIATION EFFECTS.

J.A. Panitz (5514), "The 10 cm Atom Probe," Vol. 44, No. 8, THE REVIEW OF SCIENTIFIC INSTRUMENTS.

R.L. Park and J.E. Houston (both 5114), "Comment on 'Appearance Potential Spectroscopy'," Vol. 44, No. 8, JOURNAL OF APPLIED PHYSICS.

E.J. Graeber (5525), R.J. Baughman (5154), and B. Morosin (5132), "Crystal Structure and Linear Thermal Expansivities of Platinum Silicide and Platinum Germanide," Vol. 29B, Part 9, ACTA CRYSTALLOGRAPHICA.



**PSYCHO-CYCLIST** — This time our demented one is looking over the map, he's not so dumb, as Sharon straightens him out on the Bike-A-Thon route. It's four miles long, it's on Base, it'll be held Sunday, Oct. 21, and you and your kiddies should try it. You probably won't need the Coleman lantern.

## Bike-A-Thon Slated for Oct. 21

With marathons, telethons, walkathons, it had to come. Now we have the bike-a-thon, and it's going to be held right here on KAFB Sunday the 21st of October. And it sounds like it might be fun.

Jim Baremore (2132) heads up the affair, and he explained what it's all about.

"The bike-a-thon is simple. You ride your bike around a circuit. The one we have is 4 miles long and it's on Kirtland just south of the AEC headquarters — where all the runners run. Each time you complete the circuit we validate your ticket. Now you also

have a sponsor with whom you have an understanding that he or she will pay X cents or dollars per mile that you complete. We get the loot. We is the Cancer Society. You get the glory, maybe a little sweat."

Jim emphasizes that this is a non-discriminatory bike-a-thon — he hopes that everyone who can round up a sponsor will enter. With any kind of good weather the ride promises to be both profitable and fun. If you can't make the ride, perhaps you'd like to support either Sharon or our Psycho-Cyclist (see photo). They'll be there, giving their all.

\* \* \* \*

To: LAB NEWS 3162

I'd like to pledge \$ \_\_\_\_\_ per mile

completed by \_\_\_\_\_ Sharon  
 \_\_\_\_\_ Psycho-Cyclist

\_\_\_\_\_  
 YOUR NAME

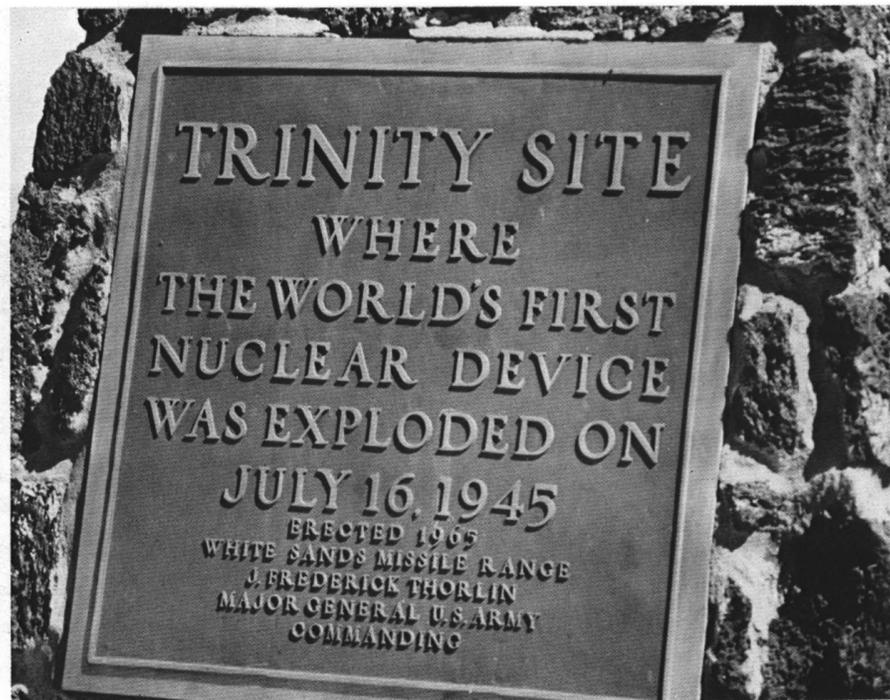
\_\_\_\_\_  
 ORG.



**SKI SWAP** this year is Oct. 19-21, according to Pete Stirbis (1542), Swap chairman. Locale remains State Fair Grounds. Skiers register skis, boots, other gear Friday afternoon and evening (the 19th) for sale. Sale runs Saturday from 9 to 5. Sandia Peak Ski Patrol is sponsor, takes 10% commission on items sold. Several thousand items were registered last year (note photo).

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Vista New Mexico

# Notes on Trinity

(This Sunday, Oct. 7, marks the date of the annual Trinity Site Tour. Tour details are given at the end of this article.)

If you live in New Mexico, if you work at Sandia, you probably possess some curiosity about where it — the nuclear age — all began. The supremely climactic moment of the Manhattan Project came that early morning in July 1945 when the first nuclear device was detonated. By all accounts, the primordial splendor of the explosion overwhelmed its few witnesses, moving the reflective Oppenheimer to recall a passage from the sacred Hindu epic, Bhagavad-Gita:

*If the radiance of a thousand suns  
Were to burst at once into the sky  
That would be like the splendor  
of the Mighty One. . .  
I am become Death,  
The shatterer of worlds.*

It was a solemn moment. And, as we drove south (last year) from Albuquerque toward Trinity, I guess I half expected perhaps a trace of the flavor of that moment might still persist, that even at this late date one could partake of the event that forever changed the future of mankind.

It turns out not quite that way. The tour of the Trinity site is, well, nothing but ordinary, enwrapped as it is in a combination of military folderol and chamber of commerce (Alamogordo) promotion. That's not meant to be critical, just descriptive, and I would still recommend the tour to anyone having the slightest sense of history. But let me quote from my notes and you can judge for yourself.

"Turn east few miles south of Socorro, through San Antonio, proceed 12 miles to Stallion Range, thence south five miles to first gate. Met by young MP, pith helmet, green ascot, given form to complete. Cameras must be in glove compartment, no weapons, no booze. Line up in caravan, about 60 cars,

wait. Sneak picture, others do same. Drink beer. Observe black widow spider at roadside, fellow traveller, car ahead, states widows are liquidarians, suck fluids from victims, kill mate after conjugal exercise.

"1130 hours, caravan moves out, through second gate, after 10 miles turn onto dirt road. Lights on, much dust, traffic slow, about five miles. Trinity compound is fence within fence, both chain link like Tech Area. Sited on open mesa. Alamogordo group shows up from south, about 200 vehicles.

"Time for regulations. Handout. Visitors MAY NOT DIG or PICK UP Trinitite. Visitors are asked to stay on marked roads. DO NOT DEVIATE. NO PETS. NO DEPARTURE WILL BE ALLOWED ON AN INDIVIDUAL BASIS. No photography except at Trinity Site. Etc.

"Crowd restive, Sgt. Blocker opens inner gate, crowd streams in. Ground zero memorial a pyramidal tower about 10 feet high with bronze plaque inset. Everyone takes photo of family next to tower. Sole remains of original tower a small mound of concrete, couple stubs of re-bar sticking out. Compound chiefly remarkable for high grass, three feet or more, recalls stories of original settlers and claims of belly high grass.

"Glance around, most visitors on knees or stooped over, not praying, looking for Trinitite. Area near tower pretty well picked over, find some little farther out.

"After interval, middle aged man, purple slacks, white belt and shoes, baseball cap, ascends small platform, identifies self over bullhorn as man from Alamogordo C of C. Crowd falls silent. Man reads from LASL brochure about event. Has trouble with 'phenomenon' and 'nuclear.' Kids begin clambering over platform. Speaker concludes with announcement that Baptist prayer meeting will follow in corner of compound.

"Overhear old timer claim he had witness-



Annual tour takes place first Sunday in October.



Be prepared for a little wait and a little dust.

ed original event from town. Suspect more and more eye witnesses show up every year.

"Exit range via caravan, cross Rio Grande, stop alongside irrigation ditch for refreshing dip and picnic lunch. Time: 3 p.m."

\* \* \* \*

If you'd like to go this year, show up at the Stallion Range gate at 11:15 Sunday morning. "ALL cars must be at the gate entrance promptly at above times." Trinity is the kind of place a person would like to visit alone on a moonlight night. That isn't possible and this tour does, after all, get you there. • js



## Comet Kohoutek Will Be Brightest Object in Sky

For the past few mornings, Grover Hughes (9474) has been getting up an hour before sunrise and sweeping the eastern horizon with binoculars and a five-inch refractor telescope. He's looking for Comet Kohoutek, discovered photographically by Dr. Lubos Kohoutek at Hamburg Observatory last March 7.

Not yet visible to the naked eye, Comet Kohoutek should be one of the brightest objects in the sky by early December. As it rushes to perihelion, swinging around the sun, the comet should be visible from Albuquerque in the east just before sunrise. About two weeks after perihelion (Dec. 28-Jan. 1) or about Jan. 14, the comet should be visible in the west just after sunset. By this time, the tail of the comet may arc one-third the way across the sky. During the days of perihelion, the comet may be visible in bright daylight by looking toward the sun, but shielding it from your eyes with your hand.

"Astronomers are predicting magnitudes of -10 to -3," Grover says, "which means it could almost be as bright as the full moon."

At this time it is hard to know just how bright Kohoutek will be. The "tail" of the comet depends on the composition of the body. Solar radiation boils off particles from the comet's head which reflect light and form the tail. The tail always streams in the direction away from the sun.

Comets are irregular in form, variable in dimension and discontinuous in structure. They have astonishing low densities and immeasurably small masses.

Comets contain so little matter that their feeble gravitational attraction is too small to be detectable. Some are estimated to have less than a millionth of the earth's mass. Because of this small mass and great size, a comet has an infinitesimal mean density — half an ounce per cubic mile, a quarter of a millionth the density of air or less. During a comet's approach to the sun, its tail seems to grow in size to a maximum which is attained before and after, but not at, perihelion.

For example, when Halley's comet was about 300 million miles from the sun, its diameter was only 14,000 miles. This increased to 220,000 miles while the comet was still 180 million miles out. It diminished to 120,000 miles at perihelion and afterwards swelled to 320,000 miles, finally contracting to a modest 30,000 miles.

The best known of all comets, Halley's comet can be traced back in historical records to 240 B.C. The common identity of these comets was recognized in 1680 by Edmund Halley, friend of Sir Isaac Newton, who never saw the comet but predicted its return. The comet was last seen in 1910, will return in 1985.

Grover became interested in astronomy in 1957 when Sputnik was first launched, did a lot of studying and observing, and now teaches three courses in astronomy and satellite orbit prediction for Sandia's out-of-hours educational program. He's the man to see with questions about astronomy. • dg

## Energy Crisis and Possible Solutions Highlight NMAS and ASCE Fall Meetings

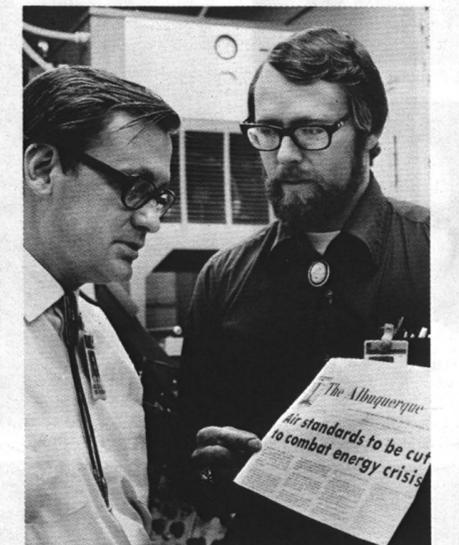
The New Mexico Academy of Science and the New Mexico Section of the American Society of Civil Engineers are each holding two-day annual meetings in Los Alamos Oct. 12-13. In addition to their general business and technical sessions, each group will tour the LASL Meson Physics facility. Dick Meyer (5324) is symposium chairman for NMAS; Walt Von Rieseemann (1541), a director in the NM Section of ASCE, is presiding at the structural engineering division session.

Highlight of both meetings will be one-day symposiums on the current energy situation. Representatives from Sandia, LASL, private industry, public utilities, state universities and the Governor's Energy Task Force will discuss energy sources — geothermal, solar, coal, municipal waste, wind and nuclear; educational aspects and the role of universities in energy research; and the role of state government in energy resources and development.

Theme of the ASCE meeting on Oct. 12 is "The Energy Situation and Possible Solutions." Sandia speakers will be Bob Jefferson (4761), "Nuclear Alternatives to the Energy Dilemma," and Bill McCulloch (1543), "Why Solar Energy?"

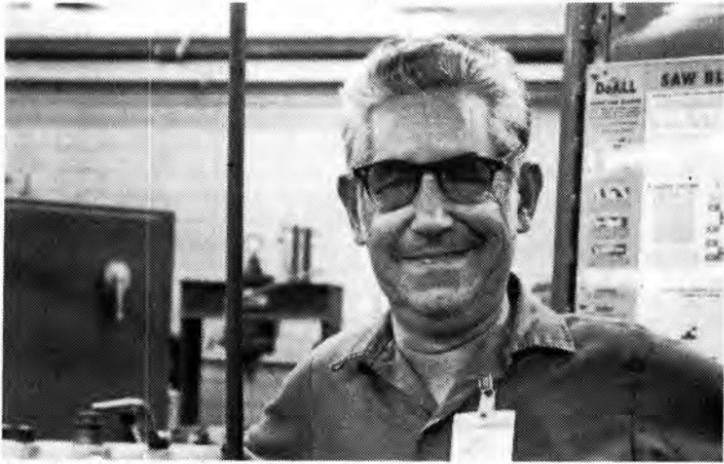
Theme of the NMAS symposium on Oct. 13 is "The Energy Crisis." Sandians presenting talks are Bob Stromberg (5712), "Solar Energy Communities," and Herman Levine (5324) and Richard Lynch (5323), "Municipal Waste as a National Energy Source."

Joining forces, both groups will convene Friday evening at a banquet where the featured speaker will be Frank DiLuzio, Science Advisor to Governor King.



COORDINATING activities for next week's energy crisis symposiums are Walt Von Rieseemann (1541), at left, representing the American Society of Civil Engineers, and Dick Meyer (5324) of the New Mexico Academy of Science.





Fermin Nieto - 7144

15



Bobby Little - 8166

15

# MILEPOSTS

## LAB NEWS

October 1973



Harold Anderson - 2314

15



Patricia Thatcher - 4256

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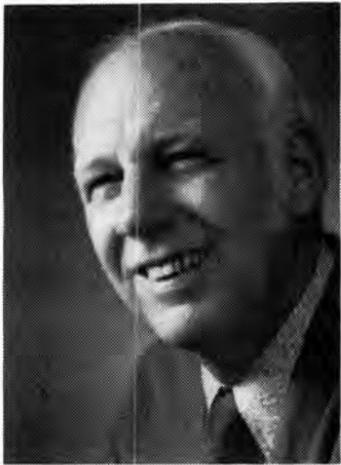
Jarvis Bumgarner - 1611

25



Clarence Johnson - 8421

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Chuck Pignolet - 8333

15



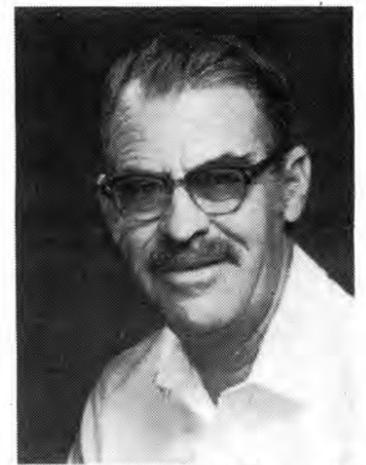
Robert E. Reed - 1554

25



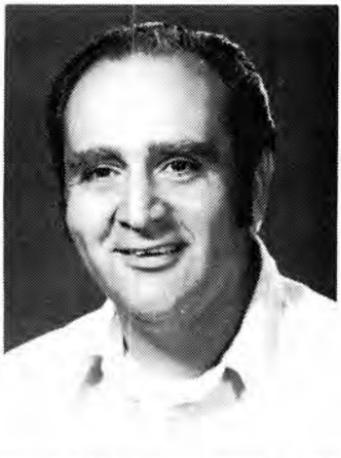
Edwin Moss - 2631

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Rafael Montoya - 7221

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Wendell Grimsley - 2631

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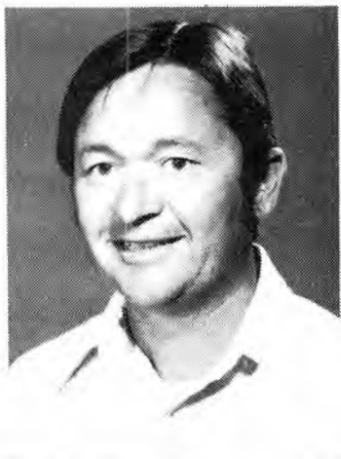
Bert Folks - 8412

25



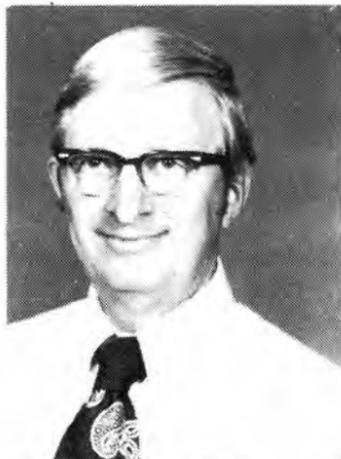
John Portlock - 2133

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David Brice - 5111

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Alfred Schwarz - 2516

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William Zagar - 7613

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Archie Sorley - 9533

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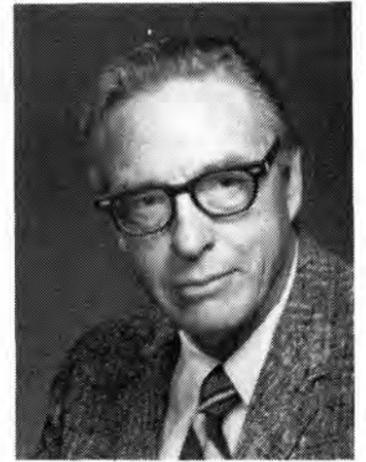
Paul Dominguez — 8161 15



Herman Goldenberg — 9525 25



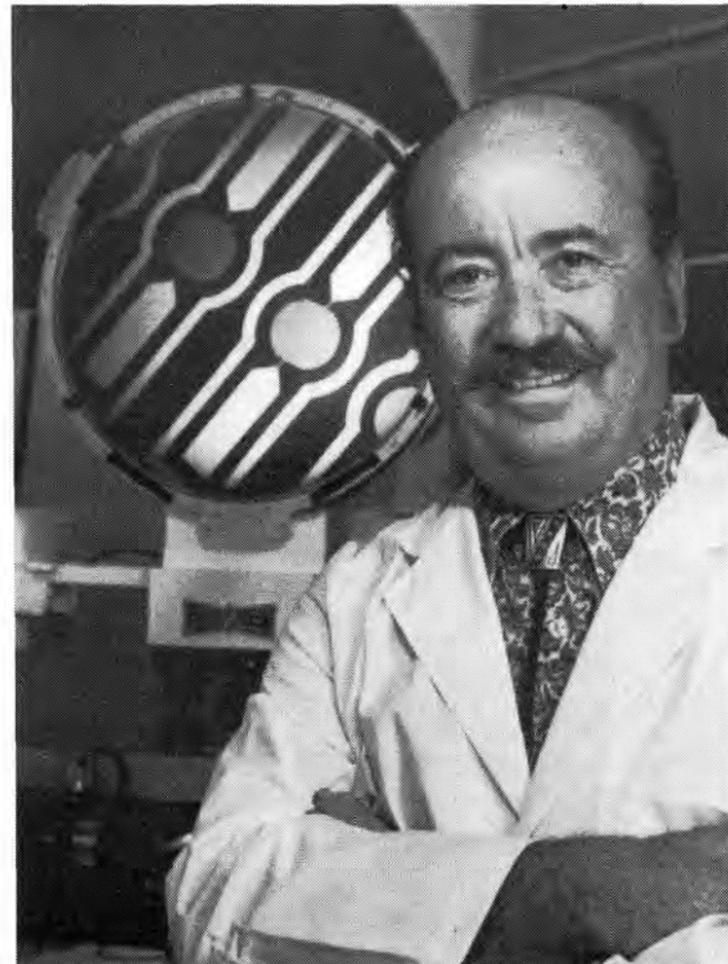
John Carroll — 4122



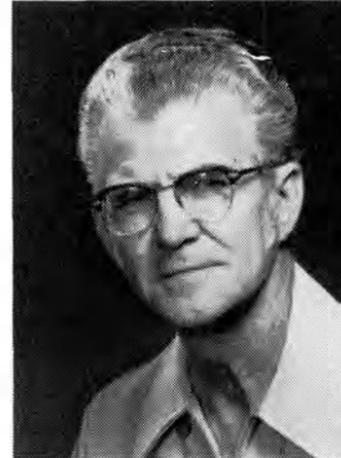
Dave Clenney — 7333 25



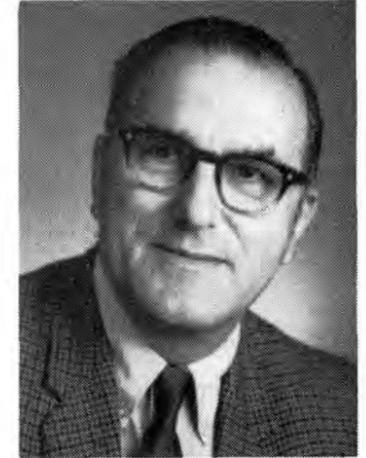
Robert Kraus — 7333 25



T. A. Allen — 7123



Raleigh Pickering — 7113 15



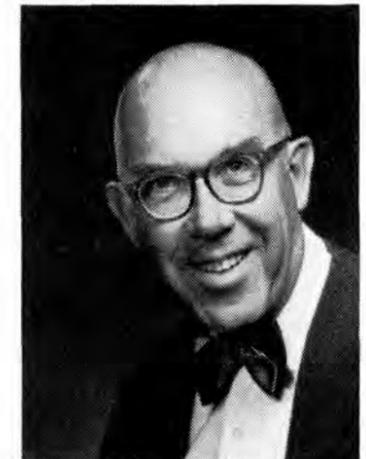
Lou Reis — 8421 15



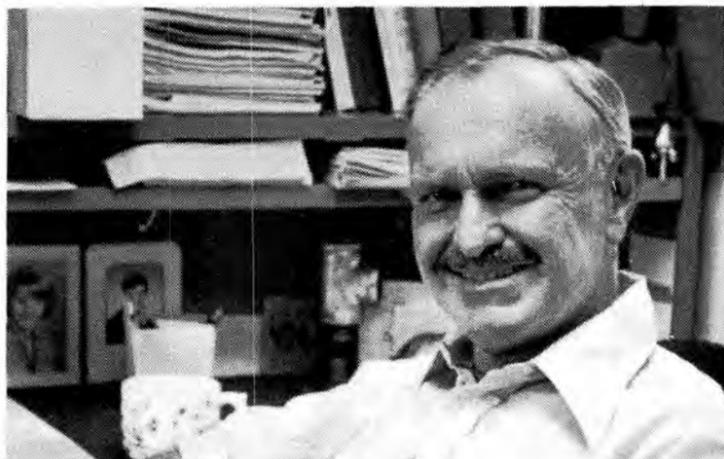
Eva Silva — 2633 10



Nick Perea — 9441 25



Gordon Miller — 9441 25



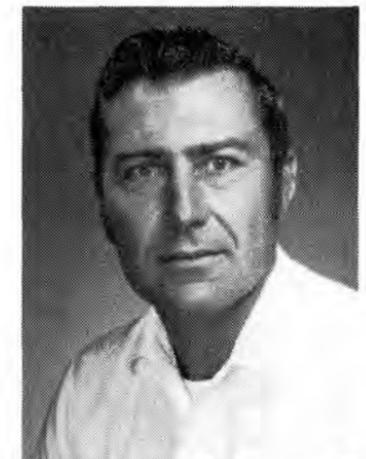
Walter Haskell — 1553



Lewis Clauson — 8155 15



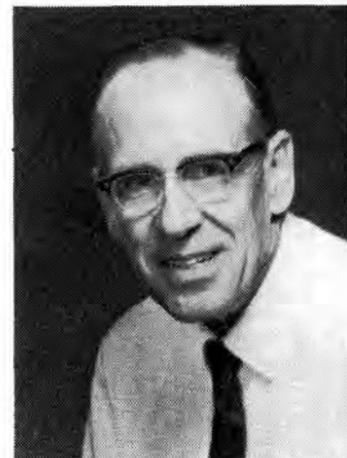
David Smith — 7553 25



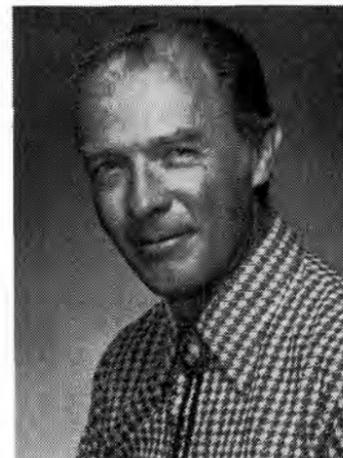
James Winter — 7513 25



James Kannolt — 2344 15



John Smalley — 5111 15



James Rogers — 9313 20

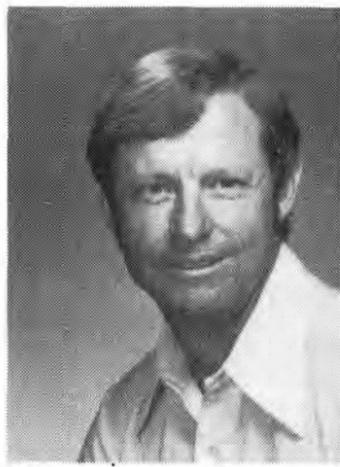


Troy Bewley — 7146 15



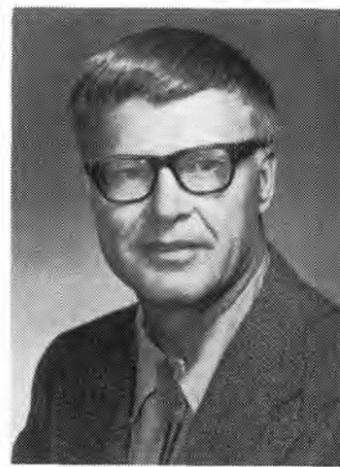
Ivan Moore - 1610

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Billy Thompson - 7511

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Joseph Crompton - 2645

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Hiram McKinney - 7513

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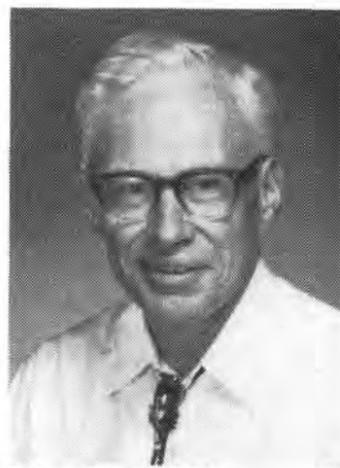
Margaret Weitzel - 2344

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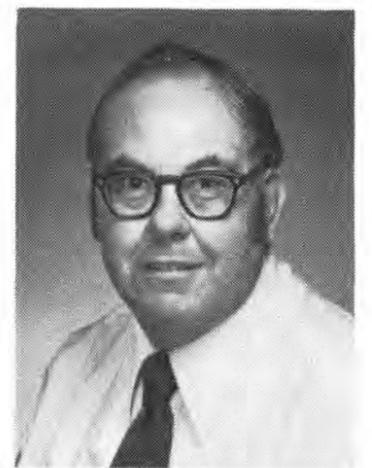
Elmer Devor - 7212

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Robert Piper - 7543

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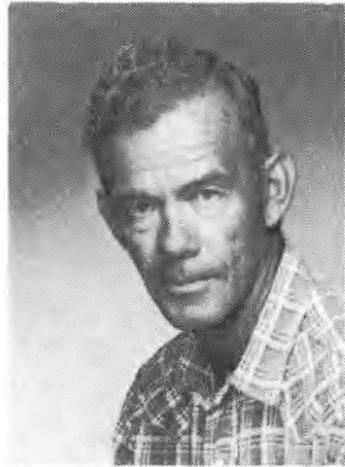
Silas Shane - 7512

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Joe Vanderpoorten - 8412

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Andrew Kersey - 7518

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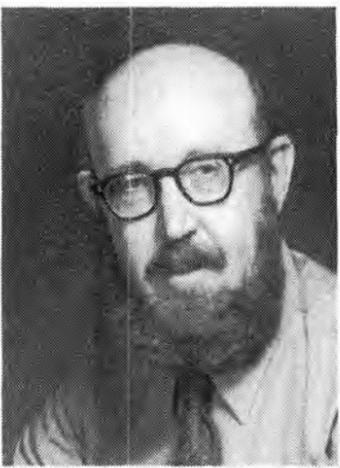
Pat Farina - 7121

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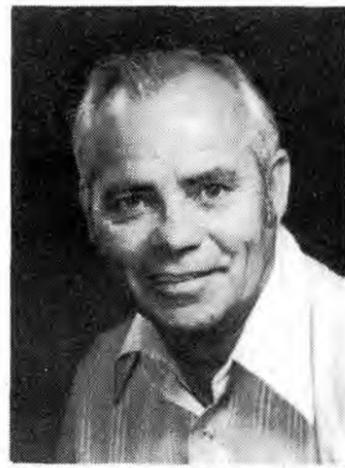
Helen Stake - 5250

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George Hansche - 1120

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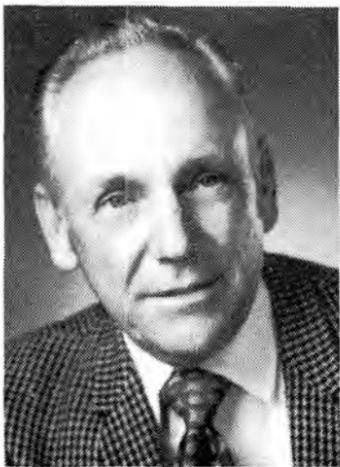
Paul Hamilton - 7145

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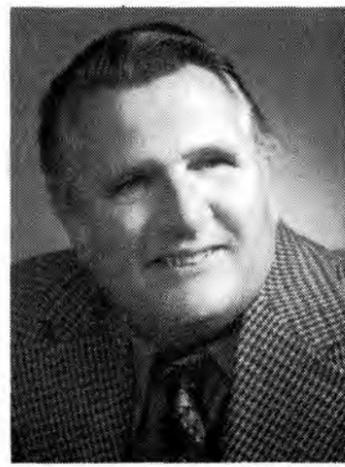
Floyd Stake - 7613

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Chuck Shinneman - 8413

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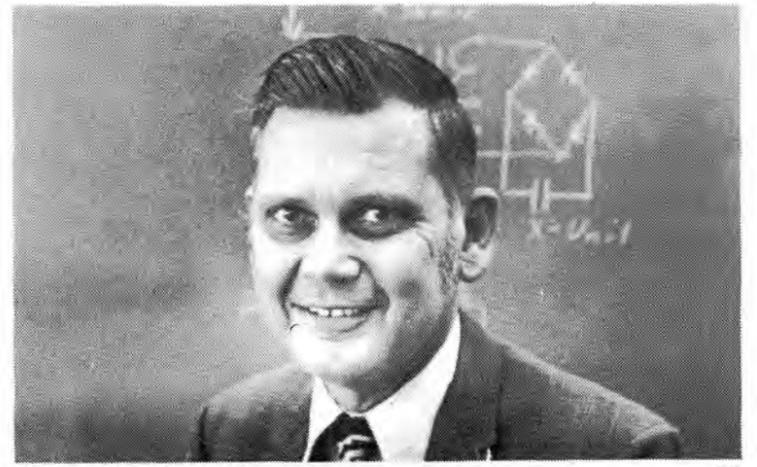
Walt Young - 8421

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John Wheelock - 8432

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William Shock - 1531

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Feedback administrator George Thorne reports that he has received more than 50 questions as LAB NEWS prepares for its press run. Plans are to begin running Feedback items on topics of wide interest in our next (Oct. 19) issue — just as soon as directors have had a chance to answer some of the questions. George also reports that several good questions have been received with no identification whatever, making it a little tough to return the response. If you really want an answer and wish to remain anonymous, then simply complete the stub on the right hand side of the Feedback form. George removes this immediately upon receipt and places it in a locked box to which only he has the key.



RETIRING from Sandia Laboratories this month are (l to r) Charlie O'Keefe (4213), Daniel Yarbrough (7633), Ruth Gustin (7133), Ed Krapf (4120) and Linus Phillips (1612).

## JUNK • GOODIES • TRASH • ANTIQUES • KLUNKERS • CREAM PUFFS • HOUSES • HOVELS • LOST • FOUND • WANTED • & THINGS

**CLASSIFIED ADVERTISING**  
Deadline: Friday noon prior to week of publication unless changed by holiday.  
A maximum of 125 ads will be accepted for each issue.

**RULES**

1. Limit: 20 words
2. One ad per issue per person
3. Must be submitted in writing
4. Use home telephone numbers
5. For Sandia Laboratories and AEC employees only
6. No commercial ads, please
7. Include name and organization
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

### MISCELLANEOUS

36" ROUND KITCHEN TABLE, 12" leaf, 4 chairs, \$40. Weart, 298-0614.

COMPUTER CONSULTANTS stock, 75 cents/share; raw, hulled sunflower seeds, 5-lb., \$3. Hiltunen, 6500 Cochiti Rd. SE, Space 56.

HEATHKIT SCOPE IO17, \$60; VOM & VTVM. Mantelli, 298-2603.

8' RAISE-UP CAMPER w/stove, water tank, sleeps 2, \$425; need low mileage small car stn. wgn. Lackey, 898-5175.

TOWN CRIER 9' couch, gold upholstery, \$100; ice skates, man's size 10, \$12, woman's size 7, \$12, girl's size 2, \$7; lg. wood desk, \$45. Estes, 299-3881.

KIRBY vacuum cleaner, \$35; girl's 26" bike, \$15; monaural cabinet record player, \$20. Pope, 255-6702.

'68 12x52 MOBILE HOME, front kitchen, \$500 or best offer & take over payments, 2-bdr. Montoya, 345-2127, 242-7460, 242-2025 evenings only.

WHEELCHAIR, collapsible, deluxe, reclining back, adj. arms & legs, chrome plated, \$175. Baczek, 255-3429.

FRIGIDAIRE Imperial range, dbl. ovens, \$700 new, sell for \$200; twin beds, \$25; custom white dinette 6 chairs, \$125, misc. items. Thompson, 296-4689.

CAB HIGH alum. shell for short wide pickup bed, \$125. Neil, 298-1645.

MINOLTA 16 MGS, automatic, flash, Minolta 16 daylight loading tank, \$75 or best offer. Jenkins, 242-4802.

CHAIN SAW; electron tubes & transformers; 2 15" Chevy wheels; Corvette exhaust manifolds; new cat scratch pole; fp screen. Snelling, 268-5895.

ANTIQUE ice cream chair; round top trunk, coffee grinder, \$25 ea.; ski rack, fits stn. wgn. rack, \$20. Crego, 255-2063.

BEAGLE PUPPIES, 13" size, AKC reg., males, \$75; 21" color TV, \$125; Sears Kenmore washing machine; modern walnut table. Chandler, 296-3323.

ELEC. IRONER, Wards, roller-type auto. ironer (mangle), 10 yrs. old, but rarely used, \$50. Meyer, 898-5224.

FENDER model CFA7010 Music-master bass amplifier, \$100. Peurifoy, 296-5907.

MOBILE HOME, '69 Great Lakes 12x50, 1 bdr., furnished, AC, set up & skirted in Terrace Park. Haines, 296-8107.

PAIR CAMPER JACKS. Parker, 299-1485 after 5.

BEAR PAW snow shoes, brand new, Tubbs, rawhide, bindings, pads, \$30. McHaffie, 293-3096 after 6.

BOOKCASE HEADBOARD for dbl. bed; desk. Hall, 298-3568.

SEARS pool, above ground, 12'x-21'x4', 2 decks, 15 sq. ft. filter, cleaning equip., extra pool ladder cover, chemicals, cost \$1100, sell for \$550. Snyder, 268-0679.

NEW 4PC. VITA MASTER health equip.: roller, belt, bike & port. slant board, reduced drastically for package sale. Devor, 255-4890.

98" SOFA, tan Naugahyde. Lindsay, 299-2737 after 5:30.

CAMPING TRAILER, 15', \$950; Coleman catalytic heater, 3-5000 BTU, \$20; girl's 26" bike, 3-spd., \$35. Langley, 298-5667.

GE WASHER & DRYER, both work, dryer all OK, washer needs timer gear & dial, \$75/pair. Anderson, 299-7782.

TAPPAN elec. range w/eye level oven & base cabinet, \$35. Campbell, 268-8445.

MOBILE HOME, Town & Country deluxe 14x75, 2-bdr., DR, 1-3/4 bath, skirted, patio cover & porch, awnings, at 4-Hills Park. Meekins, 298-6681 after 5.

H78-15 MUD & SNOW TIRES, new, Goodyear Surburbanite Polyglas belted, set of 5, \$125. Wallis, 281-5361.

10-LB. black rubber bowling ball, 5 1/2 M AMF shoes, bag, \$15. McAtee, 294-2976.

BOW, Bear Bearcat, 60" recurve, 25-lb. pull, plus accessories, \$20; Norelco port. radio, LW/AM/FM/SW, \$25. Womelsduff, 299-6269.

WASHING MACHINE, 9-yr.-old Norge, \$30; dryer, needs belt, \$10; dog house, \$20. Schmidt, 296-5631.

JUNIOR GOLF CLUBS w/bag &

cart, \$15; 2 twin box springs & mattresses, \$5/set; dishwasher, \$15; school room desk, \$10. Jefferson, 299-1125.

100 ORCHESTRATIONS for 15-piece dance band, \$99 or best offer or trade for B-flat baritone. King, 298-2991.

CLARINET, Reynolds, w/case, \$65; clothes dryer, Westinghouse, elec., \$25. Randall, 299-3935.

DOMESTIC SEWING MACHINE, 4-dwr. mahogany cabinet (cabinet fits Sears machine), \$35. Collins, 268-7144.

TRAILER, 14' Terry, lots of room, \$695 or best offer. Lefever, 298-4091.

SNARE DRUM, Slinginger, Pearl, new head & case, stand, music, \$75. Schellenbaum, 299-1005 after 3.

SUPER 8 movie camera Bell & Howell manual 1-3 zoom lens, used very little, sells for \$94 at Value House, \$35. Duvall, 299-8744.

SMALL refrig.; GE washing machine parts; feather tick, 3/4 bed size; Torro rotary lawn mower, 19". James, 298-0709.

KITTENS, mix or match, free. Kirby, 296-7856.

OVERHEAD garage door w/hardware, about 7'6" square, \$5. Gough, 3308 Palomas NE, 265-0497.

SKIS, Head 360's, 210cm, no bindings, \$35; ski boots, lady's 9 1/2 M, \$20; man's 10 1/2 M, \$15; ski poles, child's, 2 pr., \$3 & \$2. Reynolds, 299-5157.

WHEEL RIMS for Ford pickup or Bronco, 7:00x15, 5-hole, 2 w/dubious tires, 4 for \$12. Shunny, 265-1620.

SKIS, Lange SL, 204 cm, \$90; Rossignol, 170 cm, \$45; Marker Toe M4, \$20; Rotamat Heel, \$30; Foam boots: Trappeur, 8, \$75, Nordica, 5, \$50. Stevens, 299-6086.

TRUMPET, Evette Schaeffer, \$120; violin, Gotz, \$100; cases, bow included; prices 1/3 off purchase 3-4 years ago. Roose, 298-1971.

DOUBLE BATHROOM cabinets, triple view mirrors, white & gold, never used, paid \$105, take \$55; Viking sewing machine head, model 33-11, \$30. Warden, 266-8452.

SEWING MACHINE, Universal zigzag console model, all attachments; 2 steel twin bed frames with casters. Brooks, 299-1884.

**TRANSPORTATION**

'66 PONTIAC Bonneville, 4-dr.,

\$700. Marchi, 296-4048.

'67 CHRYSLER 9-pass. stn. wgn., AT, AC, PS, PB, PW, steel radials. Brace, 299-6755.

'72 HONDA 350cc, 3000 miles, green w/luggage rack & 2 helmets, \$650. Minchow, 296-9768.

RALEIGH Sprite 27" 5-spd, upright handle bars, fenders & luggage rack, \$95; Redfield 4x rifle scope, \$40. Maurin, 281-5303.

'66 BUICK LeSabre, 4-dr., AC, PS, PB, R&H, \$500. Chapel, 296-3512.

'66 PLYMOUTH Fury III S.W., luggage rack, hitch, factory air, PS, PB, \$525 or trade. Ritterbush, 298-4010.

'53 PLYMOUTH club coupe, std. trans., R&H, \$250. Kavet, 265-2788.

BRIDGESTONE 7 50cc motorcycle w/trail sprockets, elec. starter, turn signals, current license; \$60. Anderson, 299-5727.

'62 BUICK Special, 2-dr., \$125. Barkocy, 296-6620.

17' GRUMMAN White Water Model Canoe, 6 mos. old, \$325, paddles thrown in. Silva, 255-1710 after 5:30.

'70 PONTIAC LeMans economy, low mileage, AC, vinyl top, owner willing to deal, make offer. Lackey, 268-8161, 766-2389.

BOYS' BIKES: high-rise handlebars, banana seats, 20" wheels, one needs work, \$20, & \$35; half-size violin, \$35. Love, 296-6328.

20" POLO BICYCLE, high-rise handlebars, banana seat, chromed fenders, chain guard, \$15. Joseph, 299-6989.

'69 PONTIAC Firebird, 6-cyl., std. trans., low mileage, \$1350. Littleford, 296-4374.

'67 NOVA CHEVY II 327, rebuilt engine, new paint, new tires, \$1000. Sutton, 298-0001.

'72 AJS 250cc motorcycle; for serious motocrossers or weekend trail riders; many extras; \$695. Martin, 299-7045.

'71 FORD F-100 pickup, delux camper shell, AC, AT, PS, PB, PT, Explorer package, 360 CID, 21,000 miles, \$3000. Hart, 266-6811.

'60 FORD GALAXIE, 2-dr., good tires, needs some work must sell, \$150 or best offer. Bonzon, 296-3022 after 6 or weekends.

65 PONTIAC Star Chief, HT, everything, original owner. Dickason, 299-8125.

MAN'S 10-spd. Schwinn Super Sport, quick release hubs, dual brake controls; camper truck tire chains, 9.5x16.5. Reynolds, 299-7367.

'69 WINNEBAGO, 22', fully self-contained, all extras, low mileage, sleeps 8. Ward, 296-6930.

'60 CORVAIR, AT, good motor, transmission leaks, fair tires, battery, brakes, \$50. Jercinovic, 255-8027.

### REAL ESTATE

2 LOTS, 1 acre total, Rio Grande Estates, lots 3-4, blk. 995, Area H, Belen, N.M. near golf course. Treharn, 869-2583 after 6.

1/2-ACRE mobile home lots, 1/2 mile east of Peralta, low down payment, terms. Shuman, 869-3109.

LAKE FRONT lot at Conchas Lake w/view & easement to waterline; also lot near lake. Getz, 299-4865.

### FOR RENT

LIKE TO TRY BIKING TO WORK? Sandia Bicycle Assn. has located a few rentable bicycles, available for limited tryout. Easterling, 264-8834.

### WANTED

TIRE CHAINS, 7.50x16 truck, need two sets; "A" frame type tow bar to fit Scout. MacDougall, 299-8496.

T-BIRD ('67), any condition; 4-wheel drive vehicle, good condition. Hansen, 869-2716.

ALUM. FISHING BOAT, 14-16 ft.; pair of fiberglass or metal skis, 150-155cm. Fenimore, 298-8052.

SEARS 7HP gear chain saw; Groves 51-lb. 60" bow; Sears automatic 35mm projector. Souder, 281-3121.

OLD ICE BOXES that don't run; also washers or dryers. Aragon, 266-8597.

390 FORD pass. car engine. Otero, 294-0060.

E-FLAT alto sax. Luna, 298-7337.

MAN'S USED BICYCLE, balloon tires, coaster brake, prefer spring fork, any condition. Ewing, 268-6920.

TENNIS RACQUET, man's. Maak, 281-5402.

### LOST AND FOUND

FOUND — Elgin watch found in men's room Bldg. 806, second floor, silver ring found in Bldg. 800, lady's gold link-band watch "Pedre," bicycle rear-view mirror, Rx glasses in black case. Lost and Found, Bldg. 832, Tel. 264-3441.



A REMINDER HERE from Donna Reel (Miss New Mexico Universe) and Mike Michnovicz (7642) that tickets for the Club's annual Octoberfest must be picked up by Oct. 13. Mike heads the MBC Trio which is booked for the blast.

### Coronado Club Activities

## Indians Dance Tomorrow

**HAPPY HOURS** — Tonight, the Rhythmaires will play for dancing, German food tops the buffet and Denny Gallegos entertains onstage in the dining area from 9:30 to 12:30. Next Friday, Oct. 12, Italian food is featured on the buffet, Sol Chavez and the mighty Duke City Brass will hold the ballroom while Yolanda Adent entertains in the main lounge. On Friday, Oct. 19, entertainment director Pete Gallegos (2336) has booked a lovely performer named Kay Kay Baca to sing for your supper. She will do a show during the Mexican food buffet, Frank Chewiwie will then play for dancing while Denny and guitar follow onstage in the dining area.

\* \* \* \*

**TOMORROW NIGHT** is Family Vaudeville night at the Club featuring a stage show and movie. Ralph Zotigh and a troop of six dancers will perform authentic Indian dances and songs. The movie is "The Incredible Mr. Limpet" starring Don Knotts. Super sandwiches will be available. Admission is free to members and families and the fun starts about 7 p.m.

\* \* \* \*

**TEENAGERS** can do their thing Saturday, Oct. 13, from 7:30 to 10:30 while something called Iron Mountain is plugged into the bandstand. Chuck Logan of KQEO will be master of ceremonies. Member parents should pick up tickets for their youngsters.

\* \* \* \*

**CINEMA CLASSICS** this month will scare the pants off you as Vincent Price plays "The Conqueror Worm." He's another kind of madman. The show starts at 7:30 p.m. Wednesday, Oct. 17, with a Betty Boop cartoon. Admission is free to members.

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**TODAY** is the deadline for signing up for the Club's Caribbean air/sea cruise. The nine-day package is set for Jan. 4-12 and prices start at \$503 for a luxurious cruise to six ports on board the RHMS Amerikanis.

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**FOOTBALL BUS** will leave the Club tomorrow at 7 p.m. for the Lobo-Arizona State game. Will return to the Club after.



TONY WHITE CLOUD is one of the dancers performing tomorrow at the Club for Family Vaudeville Night. Admission is free to members. Happy Hour prices will prevail.

## Speakers

S.D. Meyer (1542) and C.E. Sisson (1543), "An Experimental Investigation of Captive Flight Loads on a Bomb During External Carriage on the F-111 Aircraft"; H.R. Spahr (5625), "Computer Generated Visual Documentation of Theoretical Store Separation Analyses," Second JTCF/ALNNO Aircraft/Stores Compatibility Symposium, Sept. 18-20, Sacramento, Calif.

B.M. Butcher (5133), A.C. Holt and M.M. Carroll (both LLL), "Application of a New Theory for the Pressure-Induced Collapse of Pores in Ductile Materials," RILEM/IUPAC Colloque International, Structure Des Pores Et Proprietes Des Materiaux, sponsored by Ecole Polytechnique De Prague, Sept. 18-21, Prague, Czechoslovakia.

R.A. Benham (9321) and T.A. Duffey (1544), "Experimental Theoretical Correlation on the Containment of Explosives in Closed Cylindrical Vessels," International Conference of the Center for High Energy Forming, July 9-13, Vail, Colo.

G.A. Samara (5130), "Recent Studies on the Effects of Pressure on Ferroelectric Properties," New York University, Sept. 5; Oxford University, England, Sept. 7; and Univ. of Ljubljana, Ljubljana, Yugoslavia, Sept. 20.

C.J. Miglionico, R.E. Whan, and G.J. Thomas (all 5522), "Characterization of Ion Sources by Scanning Electron Microscopy"; R.A. Sallach (5531), "Computation of TiH<sub>2</sub> Desorption Using Finite Difference Techniques"; J.W. Guthrie (2413), "Surface Contamination Analysis With an Ion Microprobe"; G.J. Thomas (5522) and W. Bauer (8334), "Helium Re-emission and Electron Microscopy of CTR Materials Candidates"; G.C. Nelson (5526), "Characterization of

Au/Cr Films by Low Energy Ion Backscattering Spectroscopy"; W.F. Chambers (5522), "Electron Probe Studies of the Pd-Al System"; J.P. Brainard (2413) and D. Jensen (2414), "Electron Avalanche and Resulting Charge Distributions on Insulators in Vacuum During High Voltage Stress"; N.J. DeLollis (5513), "RF Activated Gas Treatment of Materials"; R.J. Eagan (5316), "Interaction of Glass with Metal During Seal Formation"; G.E. Laramore (5151), "Analysis of LEED Intensity Profiles from the (100) and (111) Surfaces of Nickel and Copper"; P.H. Holloway and L.K. Yarger (both 2431), "The Role of Surface Analysis in Production of Hybrid Microcircuits"; D.M. Mattox, R.R. Sowell and R.E. Cuthrell (all 5526), "Let the Sun Shine In, or Surface Cleaning Using Ultraviolet Radiation"; R.A. Anderson (5514), "Mechanism of Fast Surface Flashover in Vacuum"; J.A. Panitz (5514), "Surface Phenomena in High Electric Fields"; E.P. EerNisse (5112), "Extension of the Double Resonator Technique for Simultaneous Thin Film Mass and Stress Measurements"; R.S. Berg, G.J. Kominaik and D.M. Mattox (all 5526), "Incorporation and Behavior of Helium in Sputter-Deposited Films"; S.T. Picraux (5111), F.L. Vook (5110) and R.A. Langley (5111), "Studies of Deuterium and Helium-3 in Erbium Films by Ion Beam Nuclear Reactions"; W. Beezhold (5112), "Simulation of Helium Effects in Neutron Tubes by Ion Implantation"; R.A. Langley (5111) and F. Bacon (2412), "Study of Electrode Products Emitted from Neutron Tube Ion Sources"; R.E. Cuthrell and D.W. Tipping (both 5526), "Ultrahigh Vacuum Studies of the Factors That Affect the Solid-Phase Bonding of Gold Wire Electrical Leads," Conference on Surface Studies, Dow Chemical, Sept. 5-7, Golden, Colo.